RENESAS
BIG IDEAS FOR EVERY SPACE

Ideal for Major Industrial Network Protocols Including EtherCAT®

RX72M MCU GROUP

RX72M Product Info

This 32-bit microcomputer is ideal for real-time applications such as industrial robots, AC servo drivers, PLCs, and remote I/O. Major protocols including EtherCAT are supported by this product, and equipment control and networking function is realized on a single chip. In addition, featured 240MHz RXv3 core, industry's largest class on-chip memory, and 182 GPIOs contribute to smaller enclosure and shortened development time by eliminating sub MCUs and external memory.

Features

- 240MHz RXv3 core, Double-precision FPU, Register bank save function for faster interrupt response
- 4MB flash memory (120MHz read access, Dual bank function), 1MB SRAM
- 182 general-purpose input/output (GPIO) ports
- 2ch EtherCAT/Ethernet, SD host I/F, USB 2.0 full speed, 3ch CAN, QSPI
- Arithmetic unit for trigonometric functions accelerating vector controls for motors
- TFT LCD controller supporting WVGA, 2D drawing engine, Serial sound I/F, CMOS camera I/F
- Encryption engine (AES, TDES, RSA, ECC, SHA, TRNG), Key management, Flash memory protection function

Benefits

- Reduce development time with sample programs covering major industrial networks
- Industry's fastest class on-chip flash memory contributes to higher real-time performance
- Industry's largest class on-chip memory and high pin-count package for smaller enclosures
- Realize equipment control and networking function on a single chip
- Dedicated hardware accelerator reduces CPU load for motor control
- HMI functions improve exterior design and operability
- Security functions protecting data communications and programs

Applications

- AC servo driver
- General-purpose inverter
- PLC (Programmable Logic Controller)
- Industrial robot
- Motion controller
- Remote I/O
- Industrial gateway

CPU

240MHz RXv3
Double-precision FPU
Register Bank Save Function

Memory

4MB Code Flash Memory
32KB Data Flash Memory
1MB SRAM

Package

100, 144, 176-pin LFQFP
176, 224-pin LFBGA

Networking & Advanced Connectivity

2ch EtherCAT Slave/Ethernet
SD Host I/F
USB 2.0 Full Speed
3ch CAN
QSPI

Motor Control

Arithmetic Unit for Trigonometric Functions
PWM Timers
2-phase Encoder Pulse Inputs
Δ-Σ Modulator I/F
12-bit A/D Converters

HMI

TFT LCD Controller
2D Drawing Engine
Serial Sound I/F
CMOS Camera I/F

Security

Encryption Engine (AES, TDES, RSA, ECC, SHA, TRNG)
Key Management
Flash Memory Protection

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Solution

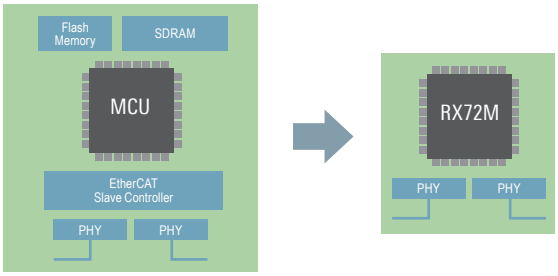
Industrial Network Solution

- EtherCAT slave controller and large on-chip memory contribute to smaller system
- Sample programs covering major industrial network protocols are available. In addition, development time can be significantly reduced by working with partners

RX72M Network Solution Page

Benefits

Smaller System Size



Hardware configuration with an existing general-purpose MCU

Hardware configuration with RX72M

Reduce development time to implement industrial network protocols

EtherCAT Technology Group, PROFINET, EtherNet/IP, Modbus, OPC UA, CC-Link IE TSN, PROFIBUS, DeviceNet, CANopen

Evaluation Board

TESSERA TECHNOLOGY INC.

Affordable Evaluation Board for Industrial Networks: "TS-RX72M-COM" by TESSERA TECHNOLOGY INC.

Features

- Conformance tests of EtherCAT, EtherNet/IP,and PROFNET RT have passed
- LEDs for conformance tests
- 2-port RJ45 connectors
- CAN transceiver, RS-485 transceiver
- Through holes for testing fieldbus communication
- UART through holes for connecting PCs

Ordering References

	Flash Memory: 4MB, SRAM: 1MB					Flash Memory: 2MB, SRAM: 1MB				
With Trusted Secure IP	R5F572MNHDFP	R5F572MNHDFB	R5F572MNHDFC	R5F572MNHDBG	R5F572MNHDBD	R5F572MDHDFP	R5F572MDHDFB	R5F572MDHDFC	R5F572MDHDBG	R5F572MDHDBD
Without Trusted Secure IP	R5F572MNDDFP	R5F572MNDDFB	R5F572MNDDFC	R5F572MNDDBG	R5F572MNDDBD	R5F572MDDDFP	R5F572MDDDFB	R5F572MDDDFC	R5F572MDDDBG	R5F572MDDDBD
Pin Counts	100	144	176	176	224	100	144	176	176	224
Package	LFQFP	LFQFP	LFQFP	LFBGA	LFBGA	LFQFP	LFQFP	LFQFP	LFBGA	LFBGA
Package Size	14mm x 14mm	20mm x 20mm	24mm x 24mm	13mm x 13mm	13mm x 13mm	14mm x 14mm	20mm x 20mm	24mm x 24mm	13mm x 13mm	13mm x 13mm
Pitch	0.5mm	0.5mm	0.5mm	0.8mm		0.5mm	0.5mm	0.5mm	0.8mm	
Operating Temperature	Ta = -40°C to 85°C					Ta = -40°C to 85°C				

* For 105°C product, please change the third last alphabet from D to G.

(Note) EtherCAT is a patented technology and registered trademark licensed from Beckhoff Automation GmbH of Germany.

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